

- 1     1.     A tension adjusting device attached to an axle member of a driven wheel of a  
2           vehicle and coupled to a forked frame member to adjust a tension of a flexible  
3           power transmission means that transfers power from a drive shaft of said vehicle  
4           to said driven wheel, said tension adjusting device comprising:
- 5                   a first tension adjuster joined to a first side of said axle member, said first  
6                   tension adjuster comprising:
- 7                   a first adjustment plate having a first dimension to slidably engage a  
8                   guide recess of a first fork of said forked frame member and a  
9                   second dimension sufficient to support a first axle fastener to said  
10                  axle member to said first adjustment plate, said first adjustment  
11                  plate including:
- 12                   an extending member that extends over an end of said first fork,
- 13                   an axle bore through which said first side of said axle member  
14                   passes to receive the first axle fastener to secure said axle  
15                   member to said first adjustment plate and couple said first  
16                   adjustment plate to said first fork of said forked frame  
17                   member, and
- 18                   a capturing recess inlet into said first adjustment plate to secure  
19                   first axle fastener to prevent movement of said first axle  
20                   fastener during the coupling of the driven wheel, and

21 an adjustment bore through said extending member, said  
22 adjuster bore aligned with said end of said first fork, and  
23 a first adjustment stud affixed through said adjustment bore to said first  
24 adjustment plate such that said adjustment stud is in contact with  
25 the end of said first fork to allow the axle member of the driven  
26 wheel to move in an adjustment slot within said guide recess to  
27 adjust the tension of the power transmission means;

28 a second tension adjuster joined to a second side of said axle member,  
29 said second tension adjuster comprising:

30 a second adjustment plate having a first dimension to slidably engage  
31 a guide recess of a second fork of said forked frame member and a  
32 second dimension sufficient to support a second axle fastener to  
33 said axle member to said second adjustment plate, said second  
34 adjustment plate including:

35 an extending member that extends over an end of said second  
36 fork,

37 an axle bore through which said second side of said axle  
38 member passes to receive the second axle fastener to  
39 secure said axle member to said second adjustment plate  
40 and couple said second adjustment plate to said second fork  
41 of said forked frame member, and

42 an adjustment bore through said extending member, said  
43 adjuster bore aligned with said end of said second fork, and  
44 a second adjustment stud affixed through said adjustment bore to said  
45 second adjustment plate such that said adjustment stud is in  
46 contact with the end of said second fork to allow the axle member  
47 of the driven wheel to move in an adjustment slot within said guide  
48 recess to adjust the tension of the power transmission means.

1 2. The tension adjusting device of claim 1 wherein said device is used to replace a  
2 tension adjusting device integrated within said forked frame member and placed  
3 forward of the axle member within said guide recesses of the first and second  
4 forks.

1 3. The tension adjusting device of claim 1 wherein the first and second adjustment  
2 plates are formed of materials selected from the group of materials comprising  
3 steel, aluminum, titanium and carbon epoxy.

1 4. The tension adjusting device of claim 1 wherein the first tension adjuster further  
2 comprises a *captivating* nut secured to the first adjustment plate within said  
3 adjustment bore to accept said first adjustment stud.

1 5. The tension adjusting device of claim 1 wherein the second tension adjuster  
2 further comprises a *captivating* nut secured to the second adjustment plate within  
3 said adjustment bore to accept said second adjustment stud.

- 1     6.     The tension adjusting device of claim 1 wherein the first and second adjustment  
2           studs are threaded and include a securing nut which, when said first and second  
3           adjusting studs have moved said driven wheel such that said flexible power  
4           transmission means has a correct tension, said securing nut for the first and  
5           second adjustment studs are placed to lock said first and second adjustment  
6           studs respectively to the first and second adjustment plates.
- 1     7.     The tension adjusting device of claim 1 wherein the first and second adjustment  
2           plates each include at least one guide marking placed to insure that the axel  
3           member is oriented with respect to said forked frame member.
- 1     8.     The tension adjusting device of claim 1 wherein the flexible power transmission  
2           means is a chain and said chain is engaged with teeth of a sprocket coupled to  
3           said driven wheel.
- 1     9.     The tension adjusting device of claim 1 wherein the flexible power transmission  
2           means is a belt and said belt is placed on a pulley coupled to said driven wheel.
- 1     10.    A tension adjusting device attached to an axle member of a driven wheel of a  
2           vehicle and coupled to a forked frame member to adjust tension of a flexible  
3           power transmission means that transfers power from a drive shaft of said vehicle  
4           to said driven wheel, said tension adjusting device comprising:  
  
5                   a tension adjuster joined to one side of said axle member, said first  
6                   tension adjuster comprising:

7                   an adjustment plate with a first dimension to slidably engage a guide  
8                   recess of a fork of said forked frame member and a second  
9                   dimension sufficient to support an axle fastener to said axle  
10                  member to said adjustment plate, said adjustment plate including:  
  
11                  an extending member that extends over an end of said fork,  
  
12                  an axle bore through which said side of said axle member  
13                  passes to receive the axle fastener to secure said axle  
14                  member to said first adjustment plate and couple said first  
15                  adjustment plate to said first fork of said forked frame  
16                  member, and  
  
17                  an adjustment bore through said extending member, said  
18                  adjuster bore aligned with said end of said fork, and  
  
19                  a first adjustment stud affixed through said adjustment bore to said  
20                  adjustment plate such that said adjustment stud is in contact with  
21                  the end of said fork to allow the axle member of the driven wheel to  
22                  move in an adjustment slot within said guide recess to adjust the  
23                  tension of the power transmission means.

1    11.    The tension adjusting device of claim 10 wherein the adjustment plate further  
2           comprises:

3                   a capturing recess inlet into said adjustment plate that secures said axle  
4                   fastener to prevent movement of said axle fastener during the coupling  
5                   of the driven wheel.

1   12.   The tension adjusting device of claim 10 wherein said device is used to replace a  
2           tension adjusting device integrated within said forked frame member and placed  
3           forward of the axle member within said guide recesses of the first and second  
4           forks.

1   13.   The tension adjusting device of claim 10 wherein the adjustment plates are  
2           formed of materials selected from the group of materials comprising steel,  
3           aluminum, titanium and carbon epoxy.

1   14.   The tension adjusting device of claim 10 wherein the tension adjuster further  
2           comprises a captivating nut secured to the first adjustment plate within said  
3           adjustment bore to accept said first adjustment stud.

1   15.   The tension adjusting device of claim 10 wherein the adjustment stud is threaded  
2           and includes a securing nut which, when said adjusting stud has moved said  
3           driven wheel such that said flexible power transmission means has a correct  
4           tension, said securing nut for the adjustment stud is placed to lock said  
5           adjustment stud to the adjustment plate.

1   16.   The tension adjusting device of claim 10 wherein the adjustment plates include at  
2           least one guide marking placed to insure that the axel member is oriented with  
3           respect to said forked frame member.

1 17. The tension adjusting device of claim 10 wherein the flexible power transmission  
2 means is a chain and said chain is engaged with teeth of a sprocket coupled to  
3 said driven wheel.

1 18. The tension adjusting device of claim 10 wherein the flexible power transmission  
2 means is a belt and said belt is placed on a pulley coupled to said driven wheel.

1 19. A method to replace an original equipment tension adjusting device attached to  
2 an axle member of a driven wheel of a vehicle and coupled to a forked frame  
3 member to adjust tension of a flexible power transmission means that transfers  
4 power from a drive shaft of said vehicle to said driven wheel, said method  
5 comprising the steps of:

6 removing said original equipment tension adjusting device from said  
7 forked frame member and said axle member;

8 providing a replacement tension adjusting device, said replacement  
9 tension adjusting device comprising:

10 a first tension adjuster joined to a first side of said axle member, said  
11 first tension adjuster comprising:

12 a first adjustment plate having a first dimension to slidably  
13 engage a guide recess of a first fork of said forked frame  
14 member and a second dimension sufficient to support a first

15                    axle fastener to said axle member to said first adjustment  
16                    plate, said first adjustment plate including:  
  
17                    an extending member that extends over an end of said first  
18                    fork,  
  
19                    an axle bore through which said first side of said axle  
20                    member passes to receive the first axle fastener to  
21                    secure said axle member to said first adjustment plate  
22                    and couple said first adjustment plate to said first fork of  
23                    said forked frame member,  
  
24                    a capturing recess inlet into said first adjustment plate to  
25                    secure a first axle fastener to prevent movement of said  
26                    first axle fastener during the coupling of the driven wheel,  
27                    and  
  
28                    an adjustment bore through said extending member, said  
29                    adjuster bore aligned with said end of said first fork, and  
  
30                    a first adjustment stud affixed through said adjustment bore to  
31                    said first adjustment plate such that said adjustment stud is  
32                    in contact with the end of said first fork to allow the axle  
33                    member of the driven wheel to move in an adjustment slot  
34                    within said guide recess to adjust the tension of the power  
35                    transmission means;



36 a second tension adjuster joined to a second side of said axle member,  
37 said second tension adjuster comprising:

38 a second adjustment plate having a first dimension to slidably  
39 engage a guide recess of a second fork of said forked frame  
40 member and a second dimension sufficient to support a  
41 second axle fastener to said axle member to said second  
42 adjustment plate, said second adjustment plate including:

43 an extending member that extends over an end of said  
44 second fork,

45 an axle bore through which said second side of said axle  
46 member passes to receive the second axle fastener to  
47 secure said axle member to said second adjustment  
48 plate and couple said second adjustment plate to said  
49 second fork of said forked frame member, and

50 an adjustment bore through said extending member, said  
51 adjuster bore aligned with said end of said second fork,  
52 and

53 a second adjustment stud affixed through said adjustment bore  
54 to said second adjustment plate such that said adjustment  
55 stud is in contact with the end of said second fork to allow  
56 the axle member of the driven wheel to move in an

57 adjustment slot within said guide recess to adjust the tension  
58 of the power transmission means;  
  
59 installing said replacement tension adjusting device on axle member;  
  
60 placing said driven wheel with said replacement tension adjusting  
61 device between the first and second fork of said forked frame  
62 member;  
  
63 coupling said flexible power transmission means to said driven wheel;  
  
64 modifying placement of said driven wheel such that the extending  
65 members of the first and second adjustment plates are aligned  
66 respectively with the ends of first and second ends of the forked  
67 frame member;  
  
68 modifying placement of said driven wheel to adjust the flexible power  
69 transmission means to a preliminary tension; and  
  
70 varying the first and second adjustment studs to move said driven  
71 wheel incrementally to adjust the flexible power transmission  
72 means to a final tension.

1 20. The method of claim 19 wherein the first and second adjustment plates are  
2 formed of materials selected from the group of materials comprising steel,  
3 aluminum, titanium and carbon epoxy.

- 1 21. The method of claim 19 wherein the first tension adjuster further comprises a  
2 captivating nut secured to the first adjustment plate within said adjustment bore  
3 to accept said first adjustment stud.
- 1 22. The method of claim 19 wherein the second tension adjuster further comprises a  
2 captivating nut secured to the second adjustment plate within said adjustment  
3 bore to accept said second adjustment stud.
- 1 23. The method of claim 19 wherein the first and second adjustment studs are  
2 threaded and include a securing nut.
- 1 24. The method of claim 23 further comprising the step of locking said first and  
2 second adjustment studs respectively to the first and second adjustment plates  
3 with said securing nut, when said first and second adjusting studs have moved  
4 said driven wheel such that said flexible power transmission means has the final  
5 tension.
- 1 25. The method of claim 19 wherein the first and second adjustment plates each  
2 include at least one guide marking placed to insure that the axel member is  
3 oriented with respect to said forked frame member.
- 1 26. The method of claim 25 wherein varying the first and second adjustment studs to  
2 move said driven wheel incrementally comprises the steps of:

3                   selectively adjusting one of the first and second adjustment studs to move  
4                   said driven wheel such that the flexible power transmission means is at  
5                   the final tension;

6                   noting location of the axle member within the forked frame member by  
7                   location of said guide marking; and

8                   adjusting the other of the first and second adjustment studs to move said  
9                   axle member to align with guide marking.

1   27.   The method of claim 19 wherein the flexible power transmission means is a chain  
2           and said chain is engaged with teeth of a sprocket coupled to said driven wheel.

1   28.   The method of claim 19 wherein the flexible power transmission means is a belt  
2           and said belt is placed on a pulley coupled to said driven wheel.